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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/679,021	10/02/2003	Choong Yong Sohn	5882P060	1514

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EXAMINER

LUK, OLIVIA T

ART UNIT PAPER NUMBER

2812

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

HA

Office Action Summary

Application No.

10/679,021

Applicant(s)

SOHN ET AL.

Examiner

Olivia T. Luk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 6-12 is/are allowed.
- 6) ☒ Claim(s) 1-5 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

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DETAILED ACTION

Information Disclosure Statement

1. The information disclosure statement (IDS) submitted on 9/29/03 has been considered by the examiner.

Claim Objections

2. Claim 5 is objected to because of the following informalities: Language is a bit confusing. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ramos et al. (6,372,666 B1) in view of Fukumoto (6,743,723 B2).

In re claim 1, Ramos et al. disclose forming a silicon nitride film on a substrate (col. 4, lines 15; 25-27); forming a porous silica film on said silicon nitride film (col. 5, lines 10-15); but fail to teach forming a silicon oxide film on said porous silica film. Fukumoto teach forming a silicon oxide film on a porous silica film (col. 6, lines 40-45). It would have been obvious to one having ordinary skill in the art at the time the invention was made to have included forming a silicon oxide film over the porous silica film as a buffer layer.

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In re claim 2, Ramos et al. disclose the substrate is a glass substrate, a silicon wafer substrate, a plastic substrate, or a plastic substrate having an inorganic substrate attached to the lower surface thereof (col. 4, lines 15-20).

In re claim 3, Ramos et al. disclose mixing starting material containing silica with a solution and condensing the mixed material; applying the condensed material on said silicon nitride using spin coating method after a predetermined condensing reaction is progressed; and performing thermal decomposition through a baking process (col. 5, lines 15-26; 45-50).

In re claim 4, Ramos et al. disclose wherein tetraethoxy orthosilicate (TEOS) or tetramethoxy orthosilicate (TMOS) is used as said starting material, and ethanol is used as said solution (col. 5, lines 25-26; 38).

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ramos et al. (6,372,666 B1) in view of Fukumoto (6,743,723 B2) as applied to claims above, and further in view of Katz (6,423,770 B1).

In re claim 5, Ramos et al. in view of Fukumoto are applied supra, but fail to disclose hydrochloric acid of acidic or ammonia water of basic is mixed as catalyst or surfactant having both hydrophobic group and hydrophilic group is mixed. Katz teaches hydrochloric acid of acidic or ammonia water of basic is mixed as catalyst or surfactant having both hydrophobic group and hydrophilic group is mixed for forming silicate materials (col. 3, lines 57-67 and col. 4, lines 1-8). It would have been obvious to one having ordinary skill in the art to have mixed both a hydrophobic group and a hydrophilic group for templating due to the arrangement of polar and nonpolar functionalities.

Allowable Subject Matter

6. Claims 6-12 are allowed.

7. The following is an examiner's statement of reasons for allowance: Prior art of record fail to disclose or reasonably suggest the formation of an amorphous silicon layer on the buffer dielectric film, the buffer being porous silica, and using a laser beam to anneal the amorphous silicon layer into a polysilicon active layer or that the active layer formed by an ELA or SLS method.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References not applied are considered state of the art in the area of semiconductor manufacture.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Olivia T. Luk whose telephone number is 571-272-1676. The examiner can normally be reached on 8AM to 5PM Mon-Fri.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael S. Lebentritt can be reached on 571-272-1873. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

OTL
January 31, 2005



MICHAEL S. LEBENTRITT
PRIMARY EXAMINER